

REMARKS

The above amendments to the above-captioned application along with the following remarks are being submitted as a full and complete response to the Official Action dated July 26, 2005 (Paper No. 0711005). In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due reconsideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

Status of the Claims

Claims 1 through 19 are currently pending in the above-identified application. Claims 1 through 4 and 6 through 12 are being amended to correct formal errors, place the claims in better form and to more particularly point out and distinctly claim the subject invention. Also, new Claims 13 through 19 are being added. Entry of the amendments to Claims 1 through 4 and 6 through 12, and entry of new Claims 13 through 19 are respectfully requested.

Additional Amendments

The Specification and the Abstract of the Disclosure have been amended to correct formal errors and to better disclose and describe the features of the present invention. Entry of the amendments to the Specification and to the Abstract of the Disclosure is respectfully requested.

Formal Objections/Rejections

Claim 1 was objected to in view of informality. In response, Claim 1 has been amended and includes an amendment addressing the informality. Therefore, withdrawal of the objection to Claim 1 is respectfully requested.

Prior Art Rejections

Claims 1 through 4 were rejected under 35 U.S.C. § 103(a) over the references disclosed in the specification at pages 1 through 4. This rejection is respectfully traversed.

Claims 5 through 7 were rejected under 35 U.S.C. § 103(a) over the references disclosed in the specification at pages 1 through 4 and further in view of U.S. Patent No. 6,111,250 to Thomson et al., hereinafter the Thomson '250 Patent. This rejection is respectfully traversed.

Claims 10 was rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 5, 741,984 to Danylewych-May et al., hereinafter the Danylewych-May '984 Patent, in view of U.S. Patent No. 5, 859,362 to Neudorfl et al., hereinafter the Neudorfl '362 Patent. This rejection is respectfully traversed.

The above rejections of Claims 1 through 7, 10 and 11 under 35 U.S.C. § 103(a) will be considered collectively.

The present invention provides an apparatus for detecting chemical substances including an ion source, an analysis region of sample ion, and a data processor determining the presence of a target chemical substance, wherein the data processor determine the detection of an adduct ion of a molecule of the target chemical substance with an organic molecule.

It is respectfully submitted that such adduct ion of a molecule of the target chemical substance with an organic molecule enhances the detection sensitivity with lower the consumption than that of a prior art chlorine dopant. (See Figures 8, 9 of the application) The organic molecule generates the adduct ion with an explosive molecule easily. Moreover, an organic molecule adduct ion is detected to be at a position of a mass number higher than that of a chlorine adduct ion. Therefore, it is easily identified from a molecular ion generated from a detection target with high selectivity. As a result, it is possible to prevent false detection. (Specification, page 12, lines 13-25, page 15, line 20 to page 17, line 17, page 24, line 8 to page 25, line 6, page 26, lines 1-13, and Figures 3-6)

As to the references described in the specification on pages 1 through 4, Japanese Patent Application No. 7-006729 (reference 3) and "7th International Symposium of Analysis and Detection of Explosives" (reference 5) disclose chlorine adduct ion. However, it is respectfully submitted that the references identified on pages 1 through 4 of the specification do not describe the organic adduct ion. The organic adduct ion of the present invention promotes higher sensitivity for the apparatus, lower consumption of dopant, and higher selectivity than chlorine of the references 3 and 5, as explained above.

Further, the position of the Examiner, that "Chlorine is an organic acid or organic acid salt" (Office Action, page 3, lines 11-12), is respectfully traversed. In this regard, it is respectfully submitted that Chlorine is an inorganic substance.

The Danylewych-May '984 Patent discloses an apparatus for the collection of a chemical sample using a token, with the token is heated by heater for analyzing the sample. (See Figure 4 of Danylewych-May '984 Patent)

The Neudorfl '362 Patent teaches that an organic acid is treated on filtering material, wherein the organic acid is for activating the surface of the filter to release EDM. (See Col. 10, lines 3'19, and Claims 6-8 of the Neudorfl '362 Patent)

In contrast to the Danylewych-May '984 Patent and the Neudorfl '362 Patent, a feature of the present invention is an organic adduct ion of target chemicals. Using this organic molecule promotes and effective apparatus for detecting chemical substances, as explained above.

In contrast, it is respectfully submitted that the Danylewych-May '984 Patent and the Neudorfl '362 Patent do not teach an organic adduct ion for the detection. Therefore, usage of organic material is different from that of the present invention.

Further, the Thomson '250 Patent was only cited for performing "mass analysis. . . via tandem mass spectrometry". (Office Action, page 4, paragraph 11)

Therefore, in view of the above discussion, it is respectfully submitted that independent Claims 1, 3, 4, 6, 7, 10 and 11 are not obvious over the references identified on pages 1 through 4 of the specification, the Thomson '250 Patent and the Danylewych-May '984 Patent and the Neudorfl '362 Patent. Claims 2 and 5, which respectively ultimately depend from Claims 1, and new Claims 13 through 19, are at least allowable for the same reasons that Claims 1, 3, 4, 6, 7, 10 and 11 are allowable.

The Office Action states that Claims 8, 9, and 12 were allowed. (Office Action , page 6)

Withdrawal of the rejections of Claims 1 through 7, 10 and 11 under 35 U.S.C. § 103(a) is respectfully requested.

Reconsideration and allowance of Claims 1 through 7, 10 and 11, confirmation of the allowability of Claims 8, 9 and 12, and consideration and allowance of new Claims 13 through 19, are respectfully requested.

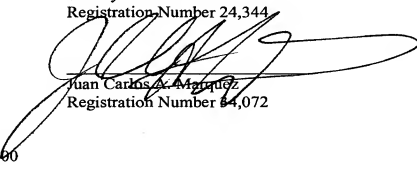
Conclusion

In view of all the above, Applicants respectfully submit that certain clear and distinct differences as discussed exist between the present invention as now claimed and the prior art references upon which the rejections in the Office Action rely. These differences are more than sufficient that the present invention as now claimed would not have been anticipated nor rendered obvious given the prior art. Rather, the present invention as a whole is distinguishable, and thereby allowable over the prior art.

Favorable reconsideration of this application as amended is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance of the above-captioned application, the Examiner is invited to contact the Applicants' undersigned representative at the address and telephone number indicated below.

Respectfully submitted,

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